

Quality Management Standards (QMS) Implementation in Egypt: ISO 9000 Perspectives

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Abstract

Purpose -The main purpose of the current study is to furnish empirical data on the various critical success factors and the associated barriers with ISO 9001: 2000 implementation in the manufacturing sector in Egypt.

Design/methodology/approach -In order to assess the critical success factors and the associated problems with ISO 9001: 2000 implementation in Egypt, a structured survey was made to reach the highest possible sample. Factor analysis was employed to reduce the number of critical success factors for effective implementation of the standard.

Findings -The present study suggested that top management was identified as one of the contributed factor to the successful implementation of ISO 9001: 2000, while the need to change the regular system to fit ISO 9001: 2000 and resistance to the introduction of ISO 9001: 2000 were significant problems faced by Egyptian manufacturing organizations.

Originality/value -This research adds to the body of knowledge concerning ISO 9001: 2000 in relation to manufacturing organizations in Egypt.

Keywords:ISO 9001: 2000,Manufacturing organizations, Egypt, Top management

Paper type: Research Paper

Introduction

The globalization of the marketplace together with the expansion of international trade, and the rapid improvement in high quality products and services has brought about high level of market pressure across the world. In order to become efficient and competitive in today's business environment, the majority of organizations are being encouraged not only to change their old operational habits, but also to develop better ways to ensure that customers are satisfied with the quality of products/services. As many organizations have discovered that the key to customer satisfaction and competitive success lies in emphasizing and achieving product and service quality as a strategic weapon in performing business (Pulat, 1994; Krasachol and Guh, 2000; Lai *et al.*, 2002; Reed *et al.*, 1999). It is clear that quality has emerged as a strategic competitive tool for organizational success (Yong and Wilkinson, 2002). In today's business environment, organizations cannot afford to ignore the strategic implications of quality for its competitive position.

In the light of this, various standardized methods, Total Quality Management (TQM) principles and criteria for formation of quality policy, creation of international quality accreditation, notification and quality certification systems were utilized among organizations to achieve quality products/services.

In today's business environment, the conformation and application of standardized quality management system models such as ISO 9000 and TQM are vitally considered to be one of the most important phenomena in total quality management development and globalization (Dale *et al.*, 2001; Ruzevicius *et al.*, 2004). TQM and quality management system implementation has had the highest positive impact on the quality improvement (see Figure 1) of companies' operations and products (Adomaitiene and Ruzevicius, 1999). In the light of this, it is vital for organizations to develop or adopt an effective quality management system such as ISO 9000, which combines also the main TQM principles (Rohitratana and Boon-Itt, 2001).

ISO 9000 is one of the most influential initiatives that grew from the quality movement of the 1980s (Poksinska *et al.*, 2002), and one of the most frequently company implemented strategies concerning quality across the world (ISO, 2006). Moreover, ISO 9000 has become a subject of focus in many developing countries, including Egypt. The literature review offers many diverse opinions on ISO 9000 in different countries but little empirical research has been carried out in Egypt concerning ISO implementation issues, such as critical success factors of ISO 9000 implementation and the problems associated with the implementation. Therefore, it is important to study some of the issues concerning the implementation of the standard in order to make the ISO 9000 system more effective in quality improvement. This paper aims to assess empirically ISO 9001 implementations in Egypt through the following phases:

1. Identification of the process owner of ISO 9001: 2000 initiations
2. Critical success factors for the transition to ISO 9001: 2000
3. The identification of the critical success factors that contributed to the success of ISO 9001: 2000 implementation
4. To identify the problems associated with ISO 9001: 2000 implementation

The results of this study are useful for further improvement of quality management practice and interesting for practitioners and academia who are interested with the current situation of ISO 9000 in Egypt.

Research Problem

The Egyptian government and the business community have placed a greater emphasis on achieving superior quality in order to compete in both domestic and foreign markets through a quality assurance system. This is vital because more and more European and foreign buyers have become frustrated having to verify the quality of Egyptian goods they purchase, a costly and time consuming process. Therefore, the Egyptian government and consulting firms have been persuading Egyptian companies to seek ISO 9000 certification to ensure quality of products/services. Moreover, the quality standard has also become a subject of interest in Egypt due to the fact that the standard has been used widely throughout Europe, the USA and worldwide as a nationally and internationally accepted quality standard (Tan and Lim-Teck Sia, 2001). Due to the importance of the standard in Egypt (see table 1), 1928 organizations have managed to implement the standard which indicated that Egypt ranked first among the Arab World in implementing the standard. Table 1 shows that UAE ranks second among the leading eight Arab countries following Egypt in ISO 9001: 2000 certification. Moreover, table 1 also shows that the United Arab Emirates (UAE) had 1040 firms followed by Saudi Arabia with 710 firms certified to ISO 9001: 2000. However, Egypt and United Arab Emirates have large number of foreign companies, and this factor contributes to their higher proportion of ISO 9001: 2000 certification. Despite the number of publications and the amount of research into ISO 9000, little research has been carried out in the Arab world and more specifically Egypt. There is very little known about ISO 9000 implementation issues in Egypt. Therefore, in ensuring effective implementation of the certification in Egypt and other Arab countries, the focus of the present

study was to examine implementation issues related to ISO 9001: 2000 in the manufacturing sector.

Table 1: ISO 9000 certification in the Arab World

Country	2001	2002	2003	2004	2005	2006
United Arab Emirates	112	407	892	819	963	1040
Egypt	18	222	754	810	1326	1928
Saudi Arabia	6	131	247	394	642	710
Morocco	14	46	64	296	403	457
Jordan	27	34	112	278	293	248
Oman	25	32	86	250	267	311
Tunisia	12	30	119	123	380	585
Kuwait	11	7	25	101	111	141

Research Methodology

To explore the critical success factors and the associated problems of ISO 9000 implementation in Egypt, a survey questionnaire was used among a sample of ISO 9000: 1994 & ISO 9001: 2000 certified manufacturing firms in Egypt. The research population consisted of the quality managers of the certified manufacturing firms in Egypt, a total sample of 120 certified manufacturing firms were identified in central Egypt. The survey questionnaire was distributed and collected by the researcher colleagues to ensure a reasonable response rate. An initial response rate of 70 per cent (84 participants) was achieved, with a final 65 per cent of usable responses, representing a total sample of 78 manufacturing organizations. The response rate was satisfactory, as Saunders *et al.* (1997) suggested that the response rate of the delivery and collection method to be between 30% - 50%.

Survey Findings and Discussion

ISO 9000: 2000 Initiations

The respondents were asked to state the process owner of the ISO 9001: 2000 initiation, or in other words who has influenced the approval of ISO 9001: 2000 implementation in the manufacturing sector in Egypt. Various parties whom may have impacted on the conversion to ISO 9001: 2000 were provided in the questionnaires and the respondents were asked to rate the importance of these reasons on a five-point scale. Table 2 presents the parties influencing the initiation of the ISO 9001: 2000.

Based on the data presented in table 2 it was clear that the most influencing parties in initiating the ISO 9001: 2000 were senior management (score of 4.54); quality manager (score of 4.35); and customer pressure (Score of 4.24). It can be noted or suggested that the forces which influenced the decision of initiating the ISO 9001: 2000 were mainly internal sources rather than external ones. This also highlights the fact that the internal employees are concerned about achieving quality products/services through the implementation of ISO 9001: 2000 in the Egyptian manufacturing organizations. Customer pressures influenced these organizations to initiate the implementation of ISO 9001: 2000, which indicates that these organizations seem to be customer focused and wish to achieve customer satisfaction through achieving quality products/services from ISO 9001: 2000 implementation. However looking into this closely, if these organizations are implementing the standard because their consumers are placing pressure

on them, this indicates that they are complying with their consumers' requirements rather than having the passion in producing quality products and service to satisfy their consumers.

Table 2: Parties influencing the initiation of ISO 9001: 2000

Initiators	Mean	SD
Senior management	4.54	0.45
Quality manager	4.35	0.53
Customer pressures	4.24	1.03
Internal auditor	3.54	1.29
Certification body	3.10	1.37
External auditor	3.04	1.40
Educational institution	2.89	1.16
Consultant	2.66	1.40
Word of mouth	2.34	1.24
Note: The mean score is based on participants' level of agreement with each statement on a scale of 1 = strongly disagree to 5 = strongly agree.		

In comparing these findings to other studies, Van der Wiele *et al.* (2005) investigated the various parties influenced the ISO 9000: 2000 conversion and indicated that the quality manager and senior management were the most important two parties played a major role in their organization's decision to convert. In the light of the study of Van der Wiele *et al.* (2005), it is clear that the present study is consistent with the findings of previous study, but also the present study suggested a further important party influenced the conversion which was customer pressure, and this finding is supported by the work of Torre *et al.* (2001) and Escanciano *et al.* (2001), while this finding is contradictory.

ISO 9000: 2000: Critical Factors for the Transition

As the various organizations are converting from the ISO 9000: 1994 to the ISO 9001: 2000, the transition from the old to the new version requires various factors to be utilized effectively to enable the effective implementation of the ISO 9001: 2000. Therefore the participants were asked to rate various statements related to the critical factors that were required to make the transition from the old version to the new version on a five-point scale. Based on the data presented in table 3, the most significant factors the participants consider to be important are in management behavior/practices. This is hardly surprising as the broader quality management scope of the ISO 9001: 2000 places increased demands on management. For example, the management responsibility focuses on the requirements for developing and improving the quality, system, listening to customers, formulating quality policy and planning and defining responsibilities, authorities and communication processes to facilitate effective quality management. The findings of the present study is consistent with previous studies, where Van der Wiele *et al.* (2005) suggested that the most important changes needed for the ISO 9001: 2000 conversion were management behavior; the quality manual; and the improvement approach. These various aspects of the conversion were supported further by Biazzo and Bernardi (2003); and Ho (2002).

In order to reduce the number of the various critical factors which helps the effective transition and group them into factors and identify any existing relationship between factors in each group? Factor analysis of the critical factors for the effective transition was performed through the principal component approach with varimax rotation procedure with a criterion cut off factor score of 0.45 was applied to select the critical factors which are shown in table 4. Based on the

data presented in table 4, it was clear that the data has been reduced to six factors and they are as follow:

- **Managerial support/practices** through clearly announced policies for quality control to all employees; encouraged change in moving towards best quality practices; strong coordinating and leading ability and worked energetically; and sense of involvement and commitment from all employees in pursuing ISO 9000: 2000
- **Employees involvement** through continuous inter-departmental planning, communication and cooperation were carried out among employees; continuous audits were performed in every department by employees ; and an inter-departmental team was established to implement ISO

Table 3: Critical factors for the ISO 9000: 2000 transition

Rank	Changes needed for the transition	Mean	SD
F1	Upper managers clearly announced policies for quality control to all employees	4.77	0.69
F2	Upper managers positively encouraged change in moving towards best quality practices	4.56	0.74
F3	Team leader had strong coordinating and leading ability and worked energetically	4.44	0.81
F4	Upper managers fostered a sense of involvement and commitment from all employees in pursuing ISO 9000: 2000	4.37	0.86
F5	Internal auditors were constantly educated and trained	4.07	0.91
F6	First line employees received systematic education and training	3.98	1.07
F7	Education and training started from upper managers and went down to all employees	3.79	1.09
F8	Employees' training and evaluations were recorded and filed	3.87	1.13
F9	Customer complaints were used as a manner to initiate improvements in the process	3.77	1.13
F10	Upper managers were actively involved in meetings	3.65	1.21
F11	Continuous inter-departmental planning, communication and cooperation were carried out among employees	3.53	1.41
F12	Continuous audits were performed in every department by employees	3.47	1.18
F13	All employees were willing to coordinate with each other	3.40	1.14
F14	Departmental work unit had effective top-down/bottom up communication processes	3.33	1.43
F15	A special department responsible for documents was established	3.29	1.40
F16	An open and trusting working environment was established	3.21	1.42
F17	An inter-departmental team was established to implement ISO	3.11	1.07
F18	Employees received support from their supervisor	3.07	0.93
F19	Employees were highly empowered to make decisions	3.02	0.78
F20	QCC was successfully carried out before implementation	1.12	1.18
F21	TQC was introduced and successfully carried out before implementation	1.02	1.27

Note: The mean score is based on participants' level of agreement with each statement on a scale of 1 = strongly disagree to 5 = strongly agree.

Table 4: Factor analysis of the critical factors for the effective transition

Composite Factors	Varimax rotated loading					
	Managerial support/Practices	Employees involvement	Education, training and auditing	Improvement approach	Implementation team	Communications
F01	0.75					
F02	0.69					
F03	0.68					
F04	0.59					
F11		0.69				
F12		0.67				
F17		0.64				
F05			0.64			
F06			0.62			
F13			0.49			
F09				0.85		
F19				0.66		
F16					0.78	
F18					0.69	
F7						0.65
F10						0.56
Eigenvalue	3.54	2.95	2.87	2.45	2.12	1.82
Cumulative Variance explained	11.4%	9.16%	7.94%	7.88%	6.55%	5.37%

- **Education, training and auditing** through internal auditors were constantly educated and trained; employees received systematic education and training; and all employees were willing to coordinate with each other
- **Improvement approach** through customer complaints were used as a manner to initiate improvements in the process and employees were highly empowered to make decisions
- **Implementation team** through an open and trusting working environment was established ; and employees received support from their supervisor
- **Communication** through education and training started from upper managers and went down to all employees ; and managers were actively involved in meetings

In comparing these findings of the present study concerning the various critical factors for the effective transition of ISO 9001: 2000 to other studies such as Arauz and Suzuki (2004) and Van der Wiele *et al.* (2005), it was clear that the most significant factor among all the studies are management support/practices; Employee involvement; implementation team; education and training; communication and improvement approach. Therefore it is clear that the findings of the present study in the manufacturing sector in Egypt are consistent with recent studies.

Critical Success Factors for Effective ISO 9001: 2000 Implementation

The present study suggested 11 possible ISO 9001: 2000 implementation factors and asked participants to rate the extent to which factor has helped the surveyed organizations the most. The rating was from “very helpful” to “not help at all”. The results are shown in table 5. By

examining table 5, it was clear that the most helpful factors the participants cited in the effective implementation of ISO 9001: 2000 are top management commitment; a well structured system of procedures; the firm's internal auditor; and assistance from the parent company or partner.

Table 5: Factors helping in ISO 9001: 2000 implementation

Rank	Factors	Mean*	Std.Dev.	Level of Importance
1	Top management commitment	4.75	0.56	High
2	A well-structured system of procedures	4.69	0.76	
3	The firm's internal auditor(s)	4.59	0.71	
4	Assistance from the parent company or partner	4.51	0.84	Medium
5	Employee motivation and commitment	3.91	1.09	
6	Communication between management and employees	3.87	1.15	
7	Human resource department contribution	3.81	1.19	Low
8	Experience with the existing quality system	2.37	2.14	
9	General written publications on ISO 9000	2.18	2.03	
10	Assistance from the external consultant(s)	2.04	1.65	
11	Assistance from the Egyptian government and chamber of commerce	1.05	1.19	

*The mean score is based on participants level of agreement with each statement on a scale of 5 = very important, 4 = fairly important, 3 = of average importance, 2 = of minor importance, and 1 = not important.

Commitment and support of top management was regarded as the most important factor in implementing ISO 9001: 2000 in Egypt and this is supported further with the current findings of the fact that top management were the contributing factor for the effective transition to ISO 9001: 2000. The process of implementing ISO 9001: 2000 in organizations requires the availability of resources that should be provided by top management, and this stresses the importance of their support. The second most important cited factor was the well-structured system of procedures, followed by the contribution of the internal auditor(s) in the firm, followed by assistance from the parent company or partner. The internal auditors are usually the keys to implementation since they continuously assess the quality system capabilities and fix any non-conformity. However, there are other factors which seemed to be of less importance in helping in the implementation of ISO 9000, for example, the experience with the existing quality system did not contribute very significantly in the implementation process. This may be explained because such systems needed major modifications to comply with ISO 9001: 2000 requirements. Another surprising factor was the assistance of external consultants was not helpful in general terms since not all firms had external consultants. This may be because firms that did not use external consultants to mark "not applicable" against this factor. To investigate how helpful external consultants to those firms used them, a comparison of mean was performed. The result suggested that the use of external consultants ranked 5th among other factors with a mean of 4.01. This suggests further that the contribution of external consultants was in fact useful.

Clearly the most important helping factor in implementing ISO 9001: 2000 was the commitment of top managers and this supports the claims of many scholars who consider this commitment to be of crucial importance (Chin *et al.*, 2000; Poksinska *et al.*, 2002; McCullough and Laurie, 1995; Johnson, 1997; Genevay, 1997). Poksinska *et al.* (2002), Quazi and Padibjo (1998), and Lee (1998) looked at ISO 9000 implementation factors in different countries. These studies were supportive of the present study and they suggested that the most important factors helping organizations in the implementation process were top management commitment, well-structured system of procedures, internal auditor(s), assistance from the parent company and employee

motivation and commitment. The order of these factors varies within studies. In Belgium, Vloeberghs and Bellens (1996) found that the most and positive factor in implementing ISO 9000 was the strong commitment of senior management and the presence of a well-structured system of procedures, which was the same as in the case of Egypt.

Moreover, the third most useful feature in Belgium was experience with the existing quality system, but this ranked 8th in Egypt. This may be because Belgian industries may have had better quality systems prior to ISO 9000 than did in Egypt.

Barriers with ISO 9001: 2000 Implementation

The researcher considered 9 statements that were regarded as disadvantages or problems with ISO 9001: 2000 implementation. Participants were asked to rate these statements on a five-point scale ranging from 5 = strongly agree to 1 = strongly disagree. The results are shown in table 6. By examining table 6, it was clear that the most significant problem was the need for the firms to change their old systems to fit the requirements of ISO 9001: 2000, with a mean score of 3.41. The second most significant problem was the resistance of employees to the introduction of ISO 9001: 2000. Employees tend to resist changes because they are afraid of the implications for them and for their functions. The third highest ranking problem with ISO 9001: 2000 implementation in the manufacturing sector in Egypt was the lack of understanding the standard by all the departments.

The problems with ISO 9001: 2000 implementation in Egypt were consistent and supportive with previous studies, for example, Poksinska *et al.* (2002), Lipovate *et al.* (1999), Yahya and Goh (2001), Fuentes *et al.* (2000), and Calisir *et al.* (2001). However, the ranking of the problems differed between studies. Further, table 7 shows a comparison between Egypt, Turkey, and Sweden. Table 7 suggests that the most significant problems associated with ISO 9001: 2000 implementation in those countries, which were the changes, resistance to the introduction of ISO 9001: 2000, bureaucratic documentation and time and cost consumption.

Table 6: Problems with ISO 9001: 2000 implementation

Rank	Problems	Mean*	Std.Dev.
1	There was a need to change the regular system to fit ISO 9000	3.41	1.01
2	There was a resistance to the introduction of ISO 9000	3.04	1.12
3	Lack of understanding of the importance of ISO 9000 by all departments	2.80	1.04
4	ISO 9000 is time consuming	2.64	1.16
5	ISO 9000 implementation involves high costs	2.58	1.08
6	ISO 9000 involves long and bureaucratic documentation	2.49	0.88
7	The firms lack well-trained and experienced internal auditors	2.35	1.12
8	ISO 9000 standards are vague and complicated	2.19	0.98
9	The surveillance visits are difficult to cope with	2.09	0.77

*The mean score is based on participants level of agreement with each statement on a scale of 5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree, and 1 = strongly disagree.

Table 7: Comparative analysis between the problems of ISO 9001:2000 in Egypt and other countries (Turkey and Sweden)

Rank	Egypt (the present study)	Turkey (Erel and Ghosh, 1997)	Sweden (Carlsson and Carlsson, 1996)
1	The need to change the regular system to fit ISO	Time and resources consuming	Lack of understanding of its importance by all departments
2	A resistance to the introduction of ISO	Difficulties in interpreting the standards	Unwillingness to change from the existing system
3	Lack of understanding of the importance of ISO by all departments	Cumbersome and bureaucratic documentation	Difficulty in understanding the ISO requirements
4	ISO implementation is time consuming	Initial difficulties in making the quality system understood	Documentation control
5	ISO implementation involves high costs	Difficulties in choosing the suitable level of documentation	Time and cost

Summary and Conclusion

ISO 9000 has been used more and more throughout Europe, The USA and World-wide. It has become a subject of focus even in many developing countries, including Egypt. Although the experience of ISO 9001: 2000 implementation has been tested and evaluated, though only a limited extent in many countries, but there is no study has been focused on Egypt. Therefore, this study was carried out to investigate ISO 9001: 2000 implementation in certified manufacturing organizations in Egypt. A response rate of 65% was obtained from 120 certified manufacturing organizations in Egypt.

The present study showed that the majority of certified manufacturing firms were medium and large organizations. When investigating the factors which contributed to the successful implementation of ISO 9001: 2000, the respondents suggested that the most significant factors helping in the implementation of ISO 9001: 2000 were top management commitment followed by a well-structured system of procedures, and the firm's internal auditors. However, the most significant problems faced certified manufacturing in Egypt were the need the need to change the regular system to fit ISO 9001: 2000, resistance to the introduction of ISO 9001: 2000, and the lack of understanding of the importance of ISO 9001: 2000 by all departments.

It is wise to conclude that ISO 9001: 2000 is viewed as an opportunity to develop an effective total quality management and quality assurance system that can contribute to the achievement of a total quality management and organizational performance. Moreover, certified manufacturing organizations seem to be using ISO 9001: 2000 certification to meet or exceed the quality levels of competition, as they are faced with powerful international competitors from the industrialized world in its domestic market as well as in foreign markets. Clearly this study may be useful to those agencies, other organizations that are involved in promoting ISO 9001: 2000 in Egypt and other organizations that are wishing to achieve the certification, where they can learn from the experience of the present sample.

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